APPENDIX A

25. An empty polyspecific MHC complex comprising an sc-MHC class II molecule comprising linked in sequence an MHC β chain-peptide linker-MHC α chain, the MHC molecule having the general formula:

$$[A-B^1-C^1]$$

$$||$$

$$[D-B^2-C^2]$$

wherein,

- a) A represents at least one empty sc-MHC class II molecule,
- b) B1, B2 are each independently a joining molecule,
- c) C1, C2 are each independently an effector molecule or –H, and
- d) D represents at least one empty sc-MHC class II molecule, ligand binding molecule or –H.
- 26. A polyspecific MHC complex comprising an empty sc-MHC class II molecule comprising a peptide binding groove, the complex being represented by the formulae A-B-C, B-A-C, or A-C-B, wherein A is at least one sc-MHC class II molecule, B is a joining molecule and C is an effector molecule or –H, provided that when the complex is represented by A-C-B, -C- is not -H.
- 27. A loaded polyspecific MHC complex formed by contacting the polyspecific MHC complexes of claim 25 or 26 with a presenting peptide under conditions which form a specific binding complex between the presenting peptide and at least one of the empty sc-MHC class II molecules.
 - 28. A polyspecific MHC complex fusion molecule comprising an sc-MHC molecule

with peptide binding groove, the MHC molecule comprising linked in sequence an MHC β chain-peptide linker-MHC α chain, the complex being represented by the following formula:

$$[A-B^1-C^1]$$

$$||$$

$$[D-B^2-C^2]$$

wherein,

- a) A represents at least one empty sc-MHC class II molecule comprising a recombinantly fused presenting peptide,
 - b) B1, B2 are each independently a joining molecule,
 - c) C1, C2 are each independently an effector molecule or -H, and
- d) D represents at least one empty sc-MHC class II molecule, ligand binding molecule or -H.
- 29. A polyspecific MHC fusion molecule comprising a sc-MHC class II molecule comprising a peptide binding groove, the complex being represented by the formulae: A-B-C, B-A-C, or A-C-B, wherein A is at least one sc-MHC class II molecule comprising a recombinantly fused presenting peptide, B is a joining molecule and C is an effector molecule or -H, provided that when the complex is represented by the formulae: A-C-B, -C- is not H.
- 38. The polyspecific MHC complex of any of claims 25, 26, 28, or 29, wherein the polyspecific MHC complex comprises the complex in Figure 9B.
- 39. The polyspecific MHC complex of any of claims 25 or 28, wherein the joining molecules are each selected from the group consisting of a helix-turn-helix motif and a dendrimer particle.
 - 40. The polyspecific MHC complex of any of claims 26 or 29, wherein the joining

molecule is selected from the group consisting of a helix-turn-helix motif and a dendrimer particle.

- 41. The polyspecific MHC complex of any of claims 25 or 28, wherein the ligand binding molecule is selected from the group consisting of an immunoglobin, a single-chain antibody, an Fv, and a receptor ligand.
- 42. The polyspecific MHC complex of claim 41, wherein the immunoglobin, single-chain antibody, or Fv is capable of binding a cell surface target selected from the group consisting of CD2, CD3, CD4, CD8, CD28, CD40, CD45, CTLA4, and Fas.
- 43. The polyspecific MHC complex of claim 41, wherein the receptor ligand is selected from the group consisting of FasL, CD80, and CD86.
- 44. The polyspecific MHC complex of any of claims 25 or 28, wherein the effector molecules are each selected from the group consisting of a cell toxin other than ricin or diphtheria toxin, a chemotherapeutic drug, a radionuclide, a protein tag, a hormone, a fluor, an enzyme, an enzyme substrate, a cofactor, an inhibitor, a ligand, a hapten, biotin, a carbohydrate, and a fatty acid.
- 45. The polyspecific MHC complex of claim 44, wherein the protein tag is selected from the group consisting of 6xHIS, EE epitope, and myc epitope.
- 46. The polyspecific MHC complex of any of claims 26 or 29, wherein the effector molecule is selected from the group consisting of a cell toxin other than ricin or diphtheria toxin, a chemotherapeutic drug, a radionuclide, a protein tag, a hormone, a fluor, an enzyme, an enzyme substrate, a cofactor, an inhibitor, a ligand, a hapten, biotin, a carbohydrate, and a fatty acid.

47. The polyspecific MHC complex of claim 46, wherein the protein tag is selected from the group consisting of 6xHIS, EE epitope, and myc epitope.